a similar amount for a similar purpose. Several other large subscriptions have been promised to the treasurer, Mr. Robert Gladstone, bringing the total up to the amount above stated.

SCIENTIFIC SERIALS

Bulletins de la Société d'Anthropologie de Paris, tome 2, fasc. 4, 1879.—This closing number of the last year's Bulletins contains an interesting paper by M. Jacques Bertillon on the mean averages of life in the various grades of society among civilised races. His paper refers specially to France, although it supplies some comparative tables deduced from the mortality tables of other countries, while it principally aims at directing attention to the preventibility of numerous causes of early death.—M. G. Lagneau, in presenting to the Society the mortality tables for Belgium, drawn up by Dr. Janssens for 1878, referred to the predominance of phthisis in male subjects in France since 1865–66, females having before that period supplied the larger number of deaths from pulmonary tuberculosis.—M. Lunier records the results of the official inquiry which he had been authorised to make in reference to the distribution of epilepsy in the various departments of France, and with regard to station, age, sex, &c.—M. le Docteur G. Le Bon gives an interesting report of his examination of the curious collection of skulls of celebrated men, now in the possession of the Paris Museum of Natural History, which is believed to include those of Boileau, Descartes, and Gall. The mean cranial capacity for the forty-two skulls, when compared with that of forty two skulls of modern educated Parisians, was in excess of the difference between the latter and an equal number of negroes.—The present number of the *Bulletins* contributes little of importance to the literature of local French palæontology, the most interesting of such contributions being a paper by M. Mortillet, who reports the discovery, by M. Perron, of a funereal car with traces of human bones and textile fabrics in the tumulus, or barrow, known as la Motte at Apremont, in Haute-Saône.—M. Verneau describes the Grotto de Voutré, in La Mayenne, in which a skeleton, believed to belong to the Bronze age, has been found, while a similar discovery has been made at Quevilly, near Rouen, as also at Cierges, where fragments of a dolichocephalic cranium of the neolithic type have been recovered. M. Millescamps has, moreover, drawn attention to the recent discovery by the Abbé Hamard, at Hermes (Oise) of cut flints in graves of the Merovingian age. The previous discovery between 1873 and 1875 of upwards of 20,000 flints in the Merovingian cemetery of Caranda has raised the question, which still awaits solution, whether these flints were deposited with the dead merely as objects with which the living had been most familiar, or whether their presence had any supposed protective action.—M. Zaborowski has laid before the Society the result of his examination of five Hakka skulls, and communicated the information he had received from M. de Lagrenée, French Consul at Canton, in regard to the history and pure Chinese origin of the Hakkas, who have in all ages formed the active combative element in the Chinese system, and have in recent years constituted the kernel of the Taiping rebellion.—The Abbé Durand describes a blonde African race, noticed near Laouga in 1562, and still traceable in Mozambique.—The original site of the Aryan race has again been brought under discussion by M. Henri Martin, who now inclines to the opinion, supported by M. de Ujfalvy, that a brown brachycephalic Aryan branch took precedence in Asia of the blonde dolichocephalic Aryans.—The most important paper in the present volume is M. Paul Broca's "Etude des Variations craniométriques, et de leur Influence sur les moyennes." To this is appended a valuable series of the means, variations, &c., of the cranial measurement of heads belonging to all countries and various periods.—M. Ujfalvy explained his views in regard to the opinion put forth by the Swedish anthropologist, Prof. G. Retzius, that Finland is occupied by two distinct races, the true Fin, or Tawaste, and the Carelian, or Finlander.—M. Emile Soldi, in presenting to the Society his recent work on the proportions of Greek and Egyptian statues, took occasion to refute the opinion advocated by Dr. Le Bon and M. Broca, that the Greeks followed Egyptian canons of taste in art, and that they took their models from foreigners.—M. Bataillard read a paper on the ancient workers in metals in Greece, and endeavours to trace in the tinsmiths of Dodona the direct ancestors of the modern Tsiganes, or gipsies.

Papers and Proceedings of the Royal Society of Tasmania for 1878.—R. M. Johnston, on the freshwater shells of Tasmania; gives a list and describes several new species.—Rev. J. E. Tenison-Woods, on some new Tasmanian marine shells; describes a new genus, Iosepha, for a Cominella with a plait, and several new species.—R. M. Johnston, on certain tertiary and post-tertiary deposits on islands in Bass's Strait.—F. M. Bailey, remarks on the distribution and growth of Queensland plants.—Rev. J. E. Tenison-Woods, on some Tasmanian freshwater univalves.—F. Abbott, on *Carduus arvensis*.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, June 10.—"On *Bacterium fœtidum*: an Organism associated with Profuse Sweating from the Soles of the Feet." By George Thin, M.D. Communicated by Prof. Huxley, Sec.R.S.

The feet of certain individuals are characterised by a peculiar powerful and fœtid odour, which is really connected with the moisture that soaks the soles of the stockings and the inside of the boots. The moisture, which comes from the skin of the soles, especially from that of the heels, has no offensive smell whilst it is exuding, but it rapidly acquires the characteristic odour when taken up by the stocking.

The fluid is an admixture of sweat with serous exudation from the blood, occurring in persons whose feet sweat profusely, and who, from much standing or walking, acquire an erythematous or eczematous condition of the skin of the soles, the local eczema or erythema being favoured by the softening and macerating effect of the sweat on the epidermis.

When a small portion of the sole of the wet stocking was teased out in water, the drop of water was found to be swarming with micrococci.

A second generation of the organism, which the author calls *Bacterium fœtidum*, was obtained by placing a small piece of the wet stocking in a test-glass, charged with pure vitreous humour. This and succeeding generations were cultivated at a temperature which varied between 94° and 98° F. The successive generations were obtained by inoculating pure vitreous humour, with requisite precautions.

In twenty-four hours the surface of the vitreous humour was always found covered with a delicate scum, which in forty-eight hours was compact and tolerably resistant.

In the scum of one day's growth and in the fluid below it organisms were found as cocci, single and in pairs, in transition stages towards rod formation, as single and jointed rods, and as elongated single rods. Many of the rods were actively motile.

The compact scum of two days growth was sufficiently resistant to be removed in an unbroken sheet. When disturbed by the needle it fell to the bottom of the glass. It was found to contain all the forms found in the twenty-four hours' growth, and in addition long unbroken rods in transition stages towards the formation of chains of spores.

Spores were also found lying beside the empty and partially empty sheaths from which they had been discharged. Groups of single spores and pairs, identical in size and appearance with those which had come to maturity in the sheaths, were found mixed up with rods in all phases of development.

The first stage in the development of the organism is the formation of a pair from one coccus.

The next stage is that in which the whole body is wedge-shaped, the round brightly refractive coccus being found in the thick end of the wedge. Another phase, which is probably the successor of the preceding one, is the appearance of a canoe-shaped figure with the bright coccus in the centre.

Other appearances connected with the early stage of development, and probably following the wedge and canoe-shaped figures, show the organism developed into a staff-shaped body, containing two elements of very different refractive power. The coccus element is still distinct and is brightly refractive, the other element is very slightly refractive and is seen as a dull shade, with however perfectly distinct outlines.

The coccus may be at one end of the rod, two cocci may be in the centre close together with a prolongation of protoplasm on either side, or a central rod of protoplasm may have a coccus at either end.

In the next stage we have the formation of the rods characteristic of bacteria. The distinction between the coccus and the protoplasm becomes lost, although transitions are found in which faint differences of refraction still betray the two elements. The formation of rods of ordinary size, of long rods with unbroken protoplasm, of rods with segmented protoplasm, and of rods filled with spores or cocci progresses identically with the similar formation in the *Bacillus anthracis*.

The bacterium grows in turnip infusion less actively than in vitreous humour. The observations were not sufficiently extended to determine whether the bacterium forms spores when cultivated in turnip infusion, but they sufficed to show that if such a formation takes place, it occurs much less actively than when the cultivation is in vitreous humour.

The fœtid odour of the stocking was reproduced in the cultivation glasses, although the strength of the odour diminished in successive generations.

Dr. Thin stated at the meeting that an antiseptic treatment by which the bacteria were killed in the stockings and inner surface of the soles of the boots completely destroyed the fœtor.

"Memoir on Abel's Theorem," by R. C. Rowe, Fellow of Trinity College, Cambridge. Communicated by A. Cayley, LL.D., F.R.S., Sadlerian Professor of Pure Mathematics in the University of Cambridge.

"On certain Effects of Stress on Soft Iron Wires," by J. A. Ewing, B.Sc., F.R.S.E., Professor of Mechanical Engineering in the University of Tokio, Japan. Communicated by Fleeming Jenkin, F.R.S., Professor of Civil Engineering in the University of Edinburgh.

Physical Society, June 12.—Mr. Huggins, F.R.S., in the chair.—New Members: Mr. H. B. Iuff, Mr. Adam Hilger, Mr. C. V. Boys.—Dr. Shettle, of Reading, read a paper on the influence of solar radiation on the earth's rotation. The fact established by Dr. Shettle, that the magnetic energy of a bar magnet acts along spiral lines has led him to surmise that the energy emanating from the sun and impinging on the earth on the zone of the ecliptic, traverses the earth in a spiral path and finally emerges at the magnetic poles. The spiral of energy is "right-handed" at one pole and "left-handed" at the other, like the magnetic force in a magnet and the electric discharge in Crookes' vacuum tubes. Like precession and nutation, these spiral paths are constantly changing and producing magnetic variations. He therefore infers that the magnetic poles will complete a cycle corresponding to the period of precession. Dr. Shettle thinks that bodies exhibit magnetic properties in proportion as they change the direction of the energy traversing them, and throw it into the spiral form. Terrestrial magnetism would be due to the solar radiance on this hypothesis. Gravity also would be produced; so likewise would the earth's rotation (by a kind of "magnetic whirl"), electricity, tornadoes, cyclones, water-spouts, and whirlwinds. Moreover this "spiral energy" would seem to operate throughout the whole universe.—Prof. Wiedemann, of Leipsic, made a communication on the phenomenon of interference in rays of long path, and showed how the phase of vibration of the atom or molecule emitting the rays influenced the phenomenon. Molecular collisions could operate in preventing interference. From a study of this question he was able to deduce a method of determining the pressure on the surface of the sun and stars. He mentioned that he had found that the temperature of a glowing gas in Geissler's tubes may be under 100° C., and therefore the light of the aurora or of comets might be accompanied by a low temperature. He had determined that the quantity of heat produced in a gas by the electric discharge was always the same, with the same amount of electricity, whether discharged at once or not, and that it increases nearly in proportion to the pressure of the gas. He had also determined that the heat which must be developed by a discharge in hydrogen in order to change the band spectrum of H into the line spectrum is about 100,000 calories for 1 gramme of hydrogen, and hence this might represent the amount of heat necessary to transform the hydrogen molecule into its atoms. Dr. Schuster suggested that Prof. Wiedemann should make a similar experiment with another gas, say nitrogen, as there was a disagreement about the spectra, and Prof. Wiedemann stated that he so intended.—Mr. Ridout exhibited a device for amplifying small motions. A small barrel is slung by two threads between the prongs of a metal fork in such a manner that if the fork is bodily carried to and fro the barrel will rotate round its axis. This is simply effected by making each thread, in its passage from one prong to the other, take a few turns round the barrel. To the barrel an index is attached, and the fork is then fixed on the body whose minute motion is to be indicated. The translation of the body shifts the fork and rotates the barrel, which in turn deflects the index round the face of a dial, and the magnifying power is expressed by the ratio of the diameter of the barrel to the length of the index. With this apparatus Mr. Ridout exhibited the lengthening of an iron core when magnetised by the passage of the current of two Grove's cells through an insulated wire coiled round it. By riveting a slip of brass to the iron, the unequal expansion of brass and iron under heat was also shown, the heat being generated by keeping the current flowing in the coil.—Mr. D. Winstanley exhibited his new radiograph for recording graphically the intensity of solar radiation throughout the day. It consists of a differential thermometer with one black bulb and a circular stem. The lower part of the stem is filled with mercury, the upper branches with sulphuric acid and water. The tube is mounted on a brass wheel, so that when the black bulb is exposed to the sun's rays the differential motion of the mercury causes the wheel to turn. The wheel carries a light index or marker, which is free to traverse a vertical cylinder covered with paper coated with lampblack, and leaves a white track where its point has scratched off the soot. The radiogram thus produced can be fixed and preserved. Dr. Guthrie pointed out the curious "thermal twilight" these radiograms had betrayed to Mr. Winstanley. They show that before sunrise the temperature increases, owing to solar radiation. Moreover, half an hour after sunset the index falls and remains till within a few minutes of midnight, when it mysteriously rises and sinks again, although the sun is then directly over the opposite hemisphere.—Mr. Baillie then gave the results of a study he had made into the theory of the phoneidoscope. He finds that waves simultaneously start from each side of the soap-film when the note is sounded, and meeting in the middle generate ventral points and notes. The equations of several cases were given by him, and he suggested that photography should be employed to fix the appearance of the figures, in order that they might be investigated theoretically.

Linnean Society, June 17.—Prof. Allman, F.R.S., president, in the chair.—Dr. R. C. A. Prior read a letter from a correspondent concerning the rare case of a mistletoe parasite on a mistletoe.—Lord Lilford exhibited and remarks were made on a series of skins, skulls, and horns of the Wild Sheep of Cyprus (*Ovis ophion*, Blyth).—Mr. E. M. Holmes pointed out the peculiarities of the Antheridia in an excellent example of *Polysiphonia fastigiata*, gathered at Ventnor.—Mr. F. Crisp exhibited slides prepared at the Zoological Station of Naples, illustrating the early stages of the life of invertebrates, and he also showed living specimens of the new Medusa, *Limnocodium victoria*.—Mr. C. Stewart showed microscopic sections of the growing point of chara and of the common ash.—A paper was read by Mr. F. M. Campbell on certain glands in the maxillæ of spiders. These glands, to which he attributes a secretory function (probably salivary), he finds in *Tegeneria demestica* have apertures on the inner side of the upper face of each maxilla, thence inclining towards the mouth. They are ring-like in figure, with an inclosed disk. There are integumental folds at their outlets. The glands and apertures increase in number with age, and the ducts tend to become chitinous. Glands varying somewhat in structure, but evidently similar in kind, exist in species of Liniyphiidæ, Theridiidæ, and the Epeiridæ.—Mr. S. O. Ridley made a communication on two cases of incorporation by sponges of spicules foreign to them. In a species of the genus *Ciocalypta*, Bwk., the dermis contained spicules which belonged to a species of *Esperia*, and which latter sponge had been obtained in the same haul of the dredge. In another example of *Alebion* spicules also derived from *Esperia* were likewise obtained. Thus an element of error might arise from one sponge containing skeletal structures accidentally derived from a neighbouring sponge of a different genus and habit.—Prof. Allman then called attention to the remarkable Medusa recently observed by Mr. W. Sowerby in the freshwater tank at the Botanic Gardens, Regent's Park (a notice of this appeared in our last week's issue, p. 178).—A short note from Prof. E. Ray Lankester concerning the same Medusa was also read.—Mr. F. M. Campbell read a second paper on the stridulating organs of *Steatoda guttata* and *Linyphia tenebricola*. A stridulating organ has already been described by Profs. Westring and Mason Wood in certain other of the spiders; the present observations demonstrate its existence in both sexes, and the essentials of the structure are given in detail.—Dr. G. E. Dobson, in notes on *Aplysia dactylomela*, a specimen obtained at Bermuda, but not distinguishable from the species inhabiting the Cape Verde Islands, showed that there is inequality of size in the right and left moiety in the dental rows of the lingual ribbon, and he described other structures appertaining to the mandibular plates.—Mr. G. Busk communicated some researches of his on the Polyzoa collected in the late North Polar Expedition. Several interesting and new forms are given, while the author expressed himself in certain cases as differing in his determinations from Prof. Smitt of Stockholm.—A paper on the natural classification of the Gasteropoda (part 1), by Dr. J. D. Macdonald, was read. He refers to a communication of his published by the Society twenty years ago, wherein sexual characters, lingual dentition, and auditory concretions formed the basis of classification. With modifications this is now elaborated, and in certain groups additional value given to the lingual and labial dentition.—The sixth contribution to the mollusca of the *Challenger* Expedition, by the Rev. R. Boog Watson, was taken as read. The author treats of the Turritellidæ, and describes nine new species.—A paper by Sir J. Lubbock was read, namely, Observations on Ants, Bees, and Wasps, with a Description of a new species of Honey-Ant, an abstract of which appeared last week (p. 184).—The following gentlemen were elected Fellows of the Society:—The Rev. H. G. Bonavia Hunt, Trinity College, London; H. N. Moseley, F.R.S., University of London; the Rev. A. Merle Norman, Durham; and E. A. Webb, Turnham Green.—The President with a few parting words then closed the session.

Chemical Society, June 17.—Prof. H. E. Roscoe, president, in the chair.—The following papers were read:—On pentathionic acid, by T. Takamatsu and Watson Smith. The authors have examined the evidence for and against the existence of this substance; they conclude that it does exist, and give a new method of preparing it, by the action of a very strong solution of iodine in hydriodic acid upon lead theiosulphate.—Preliminary note on some orcinol derivatives, by J. Stenhouse and C. E. Groves. The authors have confirmed their previous conclusion that halogen derivatives of orcinol exist, containing 5 atoms of bromine, &c., both the hydrogen atoms in the hydroxyl groups being displaced.—On the determination of carbon in soils, by R. Warington and W. A. Peake. Oxidation with potassium permanganate gives 92 per cent. of the total carbon, but digestion with chromic acid, &c., only 79 per cent. The best method is combustion with oxide of copper in a stream of oxygen.—Note on camphydrene, by H. E. Armstrong. In this note the author sharply criticises a recent paper by Dr. Letts in the Berlin *Berichte*, and, as a result of some experiments, completely confirms the statement of Montgolfier that the substance formed by the action of sodium on the solid hydrochloride from turpentine oil is a mixture, and not a hydrocarbon having the formula $C_{10}H_{17}$, as asserted by Dr. Letts.—On the action of nitric acid upon diparatolylguanidin, by A. G. Perkin. Dinitrodiparatolylguanidin, melting at 205°, was obtained in red crystals, also, by a slight modification, dinitrodiparatolylurea, melting at 233°.—On some higher oxides of manganese and their hydrates, by V. H. Veley. The oxide was precipitated by chlorine from a pure solution of the acetate, and was then heated in a current of air, oxygen; hydrates, $Mn_6O_{11}, 2H_2O : 2(Mn_6O_{11})3H_2O$, and $Mn_{12}O_{33}H_2O$ were obtained; but in no case was the dioxide formed.—On a new method of preparing dinitroethylic acid, by E. Frankland and C. C. Graham. This consists in passing nitric oxide into a mixture of zinc ethyl and sodium ethyl, to which a suitable solvent such as benzine has been added.—On the action of organo-zinc compounds upon nitriles and their analogues, by E. Frankland and H. K. Tompkins. The action of zinc ethyl upon phenylacetanitrile is studied.—On the action of benzoyl chloride on morphine, by C. R. A. Wright and C. H. Rennie. The end result is always dibenzoyl morphine.—An examination of terpenes for cymene by means of the ultra-violet spectrum, by W. N. Hartley. The author has examined specimens of orange oil, French turpentine, and Russian turpentine, by photographing their absorption spectra; the first two oils were free from cymene, the last contains certainly less than 4 per cent.—Notes on the purple of the ancients, by E. Schunck. The author has examined a sample of the dye still used on the Pacific coasts of Nicaragua, and finds that it contains a colouring matter soluble in boiling anilin, having all the properties of punicin obtained by him from the *Purpura lapillus* of the British coasts.—The Society then adjourned over the summer recess.

Anthropological Institute, June 8.—Major-General A. Pitt-Rivers, F.R.S., vice-president, in the chair.—Mr. F. G. Hilton Price, F.G.S., read a paper on camps on the Malvern Hills. Last September, having obtained permission from Lord Somers to excavate in any part of the camps on these Hills, he set his labourers to work, first on Hollybush Hill, on the south side of the Malvern range, and afterwards on Midsummer Hill, both of which were encircled by a deep ditch and a rampart, while in the glen between the two hills on the south side was the site of a town about 1,100 feet in length. In the interior of the ancient camp on Hollybush Hill were many hut hollows, some of which he opened, but without making any discovery. On the east face of Midsummer Hill were several lines of such hollows, which, like the rest, had been habitations, and no fewer than 214 had been counted. Along the ravines between the two hills were four tanks, having the ancient dams for holding back the water still in existence. The explorations of these camps were not very fruitful. More productive were the excavations on the Herefordshire Beacon Camp, one of the largest and strongest earthworks in the district. It had usually been looked upon as of British origin, and Mr. Price saw no special reason for doubting it. In one hut hollow much coarse black pottery was met with, and there were besides many bones of the ox, pig, horse, sheep, dog, some kind of gallinaceous fowl, and of the deer. A description was given of the huge block of syenite known as the "Divination stone." It was mentioned that in 1650 a jewelled gold crown or bracelet was found in a ditch at the base of the Herefordshire Beacon. Camden had written of it, and in a MS. said to belong to Jesus College, Oxford, it was stated to have been sold to a Gloucester goldsmith for 37*l.*, who sold it to a jeweller in Lombard Street for 250*l.*, who sold the stones alone for 1,500*l.* There were many traditions as to coins found there, but their dates were uncertain. Mr. Price thought this large camp, as well as those on Hollybush and Midsummer Hills, were of late Cymric or Celtic origin, that the latter camp was of earlier date than that on the Herefordshire Beacon, and that in all likelihood they were occupied by the Romano-British, as many remains of those tribes existed in the district, and the pottery seemed to date from that period.—A paper was read on religious beliefs and practices in Melanesia by the Rev. R. H. Codrington. The subject is a very difficult one, inasmuch as, the islands and dialects being so numerous, no one person's knowledge can well range over the whole. The author's information was chiefly derived from the Banks' Islands and the Solomon group, whence the most advanced scholars have come to the Melanesian Mission Station on Norfolk Island. Nothing is known to show that the Banks' Islands have been influenced by Polynesian immigration or neighbourhood; though there are still men alive who can remember a visit of double canoes from Tonga. The Banks' Islanders alone among Melanesians knew no cannibalism and wore no dress. The Banks' Islanders distinctly recognise two orders of intelligent beings different from living men; they believed in the continued existence of men after death in a condition in which they exercised power over the living; and they believed in the existence of beings who were not and never had been human. The latter are called Vuis, and are divided into two great classes, corporeal and incorporeal. The most conspicuous amongst the first class is Qat, the legends concerning whom correspond to those which prevail among the Maories and other Polynesian people concerning Maui or Tangaroa. The brothers of Qat have all of them the name of Tangaroa, and the Vuis of the northern New Hebrides have the same name, which is also applied in Banks' Islands to stones used as fetishes or amulets. The story of Qat's disappearance from the island bears a close resemblance to that of Noah and the Flood, and has possibly been embellished since the Bible history has been made known among the natives. Of the same order of beings with Qat and his brothers, though looked upon as very inferior, are certain Vuis, having rather the nature of fairies. Some of these are called Nopitu, which come invisibly, or possess those with whom they associate themselves. The possessed are themselves called Nopitu. Such persons would lift a cocoa-nut to drink, and native shell-money would run out instead of the juice, and rattle against their teeth; they would vomit up money, or scratch and shake themselves on a mat while money would pour from their fingers. This was often seen, and believed to be the doing of a Nopitu. The story of the bringing of death into the world is remarkable, because it is told without any variation in the Solomon Islands and Banks' Islands alike. At first men never died, but when advanced in life they shed their skins like snakes or crabs, and came out in renewed youth. An old woman went to a stream to change her skin, and let the old one which she had shed float away till it caught against a stick. She then went home, where she had left her child; the child refused to recognise her, and, declaring that she was another person, could only be pacified by the woman returning for her cast-off integument and putting it on again. From that time mankind have died. The Vuis, which are incorporeal and have nothing like a human life, have a much higher place than Qat and his brothers in the common religious system of the Banks' Islanders. They have no names, no stories are told of them, and they have no shape, but they are numerous, and are present and powerful to assist men who can communicate with them. They are very generally associated with stones, snakes, owls, and sharks. Communication with these Vuis is not in the power of all, but there is an order of priests. If a man has his stone or his snake, by means of which he supposes that he can obtain favours from his Vui, he will instruct his son or some one else to take his place. No other sacrifice than that of the shell money in common use seems to be offered in Banks' Islands. The great institutions of the Banks' Islands are the Suge and the Tamate. Neither has a religious character, nor is any superstitious practice necessarily connected with them. The Suge is a club, the house belonging to which is the most conspicuous building in every village, and is to be found wherever there is a permanent habitation; this house, or "gamal," has many compartments, each with its own oven, in accordance with the several grades in the society. To rise from one grade to another money has to be given and pigs killed. The authority of the men highest in the Suge is very considerable, and it is these persons who appear to traders and naval officers as chiefs. The Tamate is a secret society, to which entrance is obtained by payment, and the neophyte has to spend many days in the Salagoro, or sacred place; the only secret, however, is the making of the masks and hats in which the members appear in public and the way of producing the sound which is supposed to be the cry of the ghosts. The members of the great Tamate indulge in much licence. When they choose to go abroad to collect provisions for one of their feasts, the women and uninitiated are obliged to keep away from their paths. The warning voice of the Tamate is heard, and the country is shut up.

PARIS

Academy of Sciences, June 21.—M. Edm. Becquerel in the chair.—The following papers were read:—On the reduction of pendulum observations to the sea-level, by M. Faye. Some deductions are here made from principles he lately enunciated.—On effects of reversal of photographic images by prolongation of the luminous action, by M. Janssen. After a certain time of exposure a less distinct negative image is had, and with continued exposure this image quite disappears, and a positive one is obtained, which may be quite as distinct as the first. This was the case, *e.g.*, in photographing the sun at Meudon, when plates that had been exposed $\frac{1}{1000}$ of a second, or even $\frac{1}{20000}$ of a second (gelatino-bromide plates) were exposed half a second or a second. The sun's disk appeared white, the spots black. Similarly, positive images of landscapes, &c., were obtained. The same spectral rays give first the negative image, then the positive.—On the heat of formation of oxides of nitrogen and of those of sulphur, by M. Berthelot. The discrepancies of former observations on oxides of sulphur are here accounted for chiefly by a simultaneous formation of several degrees of oxidation of sulphur, and perhaps even the presence of water-vapour. The author's own experiments lead to the result that $S + O_2 = SO_2$ gas liberates + 34·63.—On the luminous spectrum of water, by Dr. Huggins.—Proportion of carbonic acid in the air; reply to M. Marié-Davy, by M. Reiset.—New meteoritic mineral, with a complement of information on the fall of meteorites observed in Iowa, in May, 1879, by Prof. Lawrence Smith. The formula he now gives for the mineral (indicated at the *séance* of April 26, 1880), is $SiR + \frac{1}{2}(Si, 2R)$, or perhaps more exactly $2\ddot{Si}\dot{R} + \ddot{Si}, 2\dot{R}$, which represents 2 at. of enstatite or bronzite united to 1 at. of olivine. The name of *Peckhamite* is proposed (after Prof. Peckham). On the border of Emmel and Dickson Counties some 3,000 fragments were found within a radius of 13 km.; their total weight 30 kg. Though they had lain nearly a year under water (submerging a prairie), there was not a trace of oxidation. Prof. Smith thinks this may have been due to a thin invisible coating of silicates.—Employment of bitumen of Judæa against diseases of the vine, by M. Schefer.—Report on Mr. Peirce's memoir concerning the constant of gravity at Paris and the corrections required by old determinations of Borda and Biot. The length of the simple pendulum determined by Peirce with his own apparatus is 993·934 mm., alt. 74 m. (Biot 993·913 mm., same alt.; Borda 993·918 mm., alt. 67 m.).—On the problem of inversion, by Mr. Elliot.—On an apparatus for registering the law of motion of a projectile, either in the bore of a gun or in a resistant medium, by M. Sebert. A metallic smoked rod, of square section, is fixed in the axis of the projectile, and serves as guide to a small mass carrying a small tuning-fork furnished with two metallic points, which leave undulating traces on the blackened surface, as the projectile moves along (the prongs of the fork being liberated from a constrained state, and set vibrating, when the motion of the projectile commences). From the tracing may be deduced the velocities acquired and the accelerative force in function of the time; also the law of the pressures developed.—On the transcendants which play an important part in the theory of planetary perturbations, by M. Darboux.—On the method of Cauchy for the development of the perturbative function, by M. Trépied.—On linear differential equations with an independent variable, by M. Appell.—On certain linear differential equations of the second order, by M. Picard.—On elliptic functions, by M. Farkas.—On some modifications in the construction of the Bunsen lamp and of monochromatic lamps, by M. Terquem. There are no lateral apertures, and the air is admitted between the foot of the lamp and the bottom of the tube, which is raised somewhat (6 to 7 mm.). A cross plate divides the orifice into four parts. The temperature is found nearly uniform from the upper point of the flame to the top of the green cones, and from the centre to the circumference. (An analysis of the gases drawn off is given.) This flame is variously superior, and it gives, with sodium, *e.g.*, a much more intense monochromatic flame.—On the flow of gases, by M. Neyreneuf.—On the etherification of bromhydric acid, by M. Villiers. *Inter alia*, the limit of etherification is not equal to that corresponding to organic acids, and it rises with the temperature. Etherification ceases in mixtures containing a certain proportion of water. The limit of dilution from which etherification ceases rises with the temperature.—On the hydrate of iodide of methyl, by M. de Forcrand.—On the artificial reproduction of analcime, by M. de Schulten. The process consists in heating in a closed vessel at 180° to 190°, a solution of silicate of soda or caustic soda in presence of an aluminous glass.—Presence and special character of oyster-marls of Carnetin (Seine-et-Loire), by M. Meunier.—Prevision relative to the amount of current water in the valley of the Seine during summer and autumn of the present year, by M. Lemoine. The Seine between Paris and Rouen, with its large affluents, is expected to present one of those serious and prolonged diminutions of volume which occurred in 1863, 1868, and 1871, but no extraordinary drought.—On the geological constitution of the Isthmus of Panama, with regard to the execution of the inter-oceanic canal, by M. Bouter.

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